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# Fluid/Friction Brake Dynamometer

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### Informative Abstract

The fluid/friction brake dynamometer is an instrument used to produce performance data on various motors and motor/gearbox combinations. This data is the basic engineering information needed for selecting the best combination of motors and gearbox ratios for various applications in battery powered ride-on toys.

The dynamometer provides raw data in the form of torque, speed, electric current and potential. The torque in foot-pounds and the speed in revolutions per minute comprise the output data. The electric current, in amps, and the potential, in volts, comprise the input data. From the input and output data, complete performance curves are generated. These curves show the torque along the x-axis and the speed, current, voltage, power and efficiency are plotted on the y-axis.

These curves provide a complete relationship of all factors used in determining motor and gearbox performance. At any given load level (torque) a vertical line can be drawn which crosses the lines representing speed, current, voltage, power and efficiency. At the intersections, a horizontal line is drawn across to the appropriate scale and read. Also, horizontal lines can be drawn from any scale along the y-axis to intersect it's curve. Then a vertical line is drawn to connect any other curve and traced horizontally back to it's scale and read. For example, to find the percent efficiency at 15 amps, a horizontal line is drawn from 15 amp mark to connect the current curve, from there a vertical line is drawn to connect the efficiency curve, then a horizontal line is drawn back to read the efficiency scale.

FLUID/FRICTION BRAKE DYNAMOMETER

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and  
MET-497

by  
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April 22, 1985

ABSTRACT

This dynamometer is used to produce performance curves on motors and gearboxes used for battery powered ride-on toys. These curves provide information needed for selection of different motors and gearbox ratios for specific applications.

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